ROV winch failure

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One of our Members has reported an ROV winch failure during drill support on a semi submersible drill rig working in 80-100 metres water depth.

What happened?

During a ROV launch the vehicle was raised approximately 1.8 metres to allow the moonpool doors to open. With the doors secured open the ROV was lowered through the moonpool. When the top of the TMS became level with the cellar deck the winch went into free fall. Since all attempts by the winch operator to gain control of the winch had no effect, the winch operator and ROV crew secured the area, put safety barriers in place and a person posted to prevent any one entering the launch area. The 1500 metres of steel armoured umbilical had spooled off the winch drum and the end was retained by the clamp mechanism on the drum.

No one was injured and there was no damage to subsea structures resulting from the incident.

Our Member's investigation revealed the following:

The initial investigation conducted by the winch/gearbox manufacturers has shown a bearing in the gearbox had failed allowing the output shaft with the drive pinion to be ejected from the gearbox. The winch manufacturer is Lawson Engineers, and the gearbox manufacturer is Brevini.

Both the hydraulic lock and the failsafe brake are on the input side of the gearbox and had operated correctly, but when the output shaft was ejected the drive pinion lost contact with the drum gear ring and all control of the drum was lost. The winch then went into freefall.

Our Member took the following actions:

The following actions have been initiated by the member concerned:

- Gearbox oil samples to be taken from all similar winches in service to establish any signs of early bearing failure.
- Oil replaced in all gearboxes to allow an even starting point for future analysis.
- Gearbox oil samples to be taken every three months and analysed to help early detection of any future bearing failure.
- A mechanical retaining plate to be retrofitted to all similar winches to

prevent the gearbox output shaft being ejected and causing the drive pinion to loose contact with the drum ring gear.

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